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Amendments To the Claims:

1-20. (canceled)

21. (original) A high temperature thermal barrier coating material for a turbine component, comprising:

a three-dimensional array of generally contacting ceramic geometric shapes having a packing density of 20% to 85%, the ceramic shapes having a wall structure density of 70% to 100% and a wall thickness of 50 to 500 micrometers; and

a binder disposed within the array and among the ceramic shapes to bind the ceramic shapes together within the array,

wherein the thermal barrier coating material is thermally stable at temperatures up to 1600°C.

22. (original) The coating material of claim 21, wherein the turbine component is selected from the group consisting of: blade, vane, transition, combustor, and seal.

23. (original) The coating material of claim 21, wherein the turbine component is in a combustion turbine assembly.

24. (original) The coating material of claim 21, wherein the packing density is 35 to 65%.

25. (original) The coating material of claim 21, wherein the wall structure density is 85% to 100%.

26. (original) The coating material of claim 21, wherein the wall thickness is 100 to 400 micrometers.

27. (original) The coating material of claim 21, wherein the geometric shapes have an aspect ratio of less than 5-to-1.

28. (original) The coating material of claim 21, wherein the geometric shapes are spherical.

29. (currently amended) The coating material of claim 28, wherein the wall-thickness-to-radius ratio is 0.05 to 0.5 and the spheres are hollow.

30. (original) The coating material of claim 21, wherein the binder is ceramic.

31. (original) The coating material of claim 30, wherein the ceramic binder is less dense than the ceramic shapes.

32. (original) The coating material of claim 21, wherein the binder physically adheres to the ceramic shapes to bind the ceramic shapes together within the array.

33. (currently amended) A high temperature material system adapted for use on a turbine component, comprising:

a three-dimensional array of generally contacting ceramic geometric shapes having a packing density of 20% to 85%, the ceramic shapes having a wall structure density of 70% to 100% and a wall thickness of 50 to 500 micrometers; and

a filler disposed within the array and among the ceramic shapes to ~~bind~~ interconnect the ceramic shapes ~~together~~ within the array,

wherein the material system is thermally stable at temperatures up to 1600°C.

34. (original) The material system of claim 33, wherein the turbine component is selected from the group consisting of: blade, vane, transition, combustor, and seal.

35. (original) The coating material of claim 33, wherein the turbine component is in a combustion turbine assembly.

36. (original) The coating material of claim 33, wherein the filler is ceramic.

37. (original) The coating material of claim 36, wherein the ceramic filler is less dense than the ceramic shapes.

38. (original) The coating material of claim 33, wherein the filler physically compresses the ceramic shapes to bind the ceramic shapes together within the array.

39. (currently amended) A high temperature resistant turbine component, comprising:

a component selected from the group consisting of: blade, vane, transition, combustor, and seal; and

a high temperature coating applied to the component, the coating comprising:

a three-dimensional array of generally contacting ceramic geometric shapes having a packing density of 20% to 85%, the ceramic shapes having a wall structure density of 70% to 100% and a wall thickness of 50 to 500 micrometers; and

a binder or filler disposed within the array and among the ceramic shapes to bind or interconnect the ceramic shapes together within the array.

40. (original) The turbine component of claim 38, wherein the coating covers the entire surface of the component.